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DISCOVERIES AND CURRENT EVENTS *

Algeria: Invasion of the Desert Locust in 1934 (1).

It was reported for the first time on 8 October, 1933, in the region of Ouallen that the Desert Locust (*Schistocerca gregaria*) was invading Touat where a very large swarm flew over Reggan on 22 October and afterwards Gouara where they settled in small numbers at Timimoun on 25 October.

From the beginning of November the posts of Beni-Abbès, El-Goléa and Ouargla reported the arrival of locusts generally in dense swarms and chiefly in the region of El-Goléa. Their progress continuing, the locusts reached Tougourt where a large number settled on the 16th, also at Beni-Ounif where a swarm passed over on the 17th and continued towards the N. W. The region of Aïn-Sefra was attacked on the 22nd.

The locust activity decreased considerably during the month of December though some swarms arrived at Laghouat and Tougourt.

The month of January, 1934 marked a slight recrudescence of the invasion which has aroused fears of an invasion of Tell in the following spring.

A very large swarm, 20 kilometres long, passed the cuvette of Fort Lallemand on 6 January, flying towards the N. and consequently some settlements were reported, from the 13th, in the regions of Ghardaïa, Aïn-Sefra and El-Oued. This drive towards the North by the majority of the swarms was of short duration and displacements are of little importance during the month of February.

In March reports increased, but the swarms did not progress towards the North. They settled chiefly in the regions of Ghardaïa and Aïn-Sefra.

The change in colour announced the approach of maturity; copulation was frequent and the first layings took place from 4 to 8 March at about 60 kilometres South-West of Ghardaïa, then about the 15th in the annex of Aïn-Sefra, where they continued, chiefly in the surroundings of Moghrar Foukani and Moghrar Tahtani.

The invasion only increased a little during the month of April. A fair number of medium sized swarms circulated in the annex of Aïn-Sefra where laying took place over a small surface. Some reached the annex of Géryville during the course of the first fortnight of the month, which is also slightly infested.

* Under this and the third heading the countries are arranged in French alphabetical order.

(1) Communication from the official correspondent of the Institute, Mr. M. DELASSUS, Inspector, Chief of the Crop Protection Service and Phytopathological Inspection, Government General of Algeria, Algiers.

In the South of the department of Algiers some swarms reached the annex of Djelfa on 19 April, in the district of Messad, but only very small layings took place. The annex of Laghouat was more severely infested at the end of the month when numerous swarms were reported, on 23 and 24 April and 3 May, as laying near the oasis, also at El-Haouita over a total area of about 250 hectares.

On the other hand, in the South of Constantine Department, the locusts, which had again gone up the Oued Rhir at the beginning of the month as far as the latitude of Ourir and had even laid to a very slight extent near Ouled Djellal on 19 April, completely disappeared.

On 30 April, on which day some isolated adults were collected at the douars Kef Lakhdar and Tirghane, mixed commune of Aïn-Boucif, the maximum extent of the invasion was reached. Swarms and laying were subsequently rare and have not been reported except in the annexes of Laghouat and of Aïn-Sefra.

Hatchings began on 11 April in the South of Ghardaïa and on the 21st in the district of the two Moghar at Aïn-Sefra, though not reported until a month later in the annex of Laghouat. The larval bands which resulted were only of importance in the annex of Aïn-Sefra, and, on a smaller scale, in the annex of Laghouat. An energetic control of the hoppers resulted in a very rapid and complete destruction and the campaign finished on 16 June on which day the last hatchings took place at Géryville.

The very rare swarms of the second generation certainly came from a few larval bands which had developed in the totally desert regions of the extreme South. Their very early appearance seems to confirm this hypothesis as they were reported on 21 and 27 April in the districts of the two Moghar at which time the eggs deposited in this country had hardly begun to hatch out.

Subsequently, they were only rarely reported and always in the South of Oran Département. The last settled on 2 July at Aïn-Sefra and then disappeared, putting an end to an invasion which was of small density and entirely localised.

Angola: Locust Control (1).

The following is a summary of the locust control carried out in the Colony during the months of May to August, 1934.

Destruction of the eggs has taken place throughout the whole Colony, including the frontier regions. More than a hundred tons of egg-pods have been bought from natives and Europeans. This operation will, however, be continued and as the credit of 869 'contos' (about 9 000 pounds) is already exhausted, further credits will be granted for intensifying the control of the egg. destruction tiated with good results.

For the control of hoppers there will be required 15 tons of sodium arsenite, 500 pumps and 10 000 sheets of galvanised iron, in addition to the material left over from last years' campaign.

(1) Communication from Mr. JORGE DE BARROS RODRIGUES QUEIROZ, Agronomical Engineer, attached to the Locust Control Services, Luanda, Angola.

The Government of the Colony is prepared to make the greatest sacrifices, even greater than its own financial resources, to reduce as much as possible the infestation of egg-pods and hoppers which will be enormous this year, in the hopes that the neighbouring States will adopt the same methods in order that our efforts will not be rendered useless.

Argentine Republic: Yellow Rust in the Wheat-Growing Region. Behaviour of the Cultivated Varieties vis-à-vis the Disease (1).

The 'Dirección de Defensa Agrícola y Sanidad Vegetal', through the Phytopathological Division of the Ministry of Agriculture, has carried out a new study on yellow rust (*Puccinia glumarum tritici*) in order to again ascertain the region most affected and the behaviour of the various varieties of wheat.

The first appearance of yellow rust in 1934 in the cereal growing region was ascertained by the above-mentioned Division, on specimens of wheat from Pergamino, Buenos Aires. On the other hand in the wheats grown around Buenos Aires, the appearance was noticed at the beginning of the second half of the month of September.

To obtain an idea of the diffusion of yellow rust in the cereal region, and the behaviour of the various varieties of wheat, studies were made of 353 specimens coming from different places, sent by the 'agrónomos regionales' and experts of the 'Dirección de Defensa Agrícola y Sanidad Vegetal', and especially selected where signs of the appearance of yellow rust were noticed. Of these specimens, 182 came from Córdoba, 128 from Buenos Aires, 27 from Santa Fé, 10 from Entre Rios, 2 from La Pampa, 3 from San Luis and 1 from Santiago del Estero.

The degree of the attack was determined in the same way as in previous years, adopting the graduated scale from 1 to 5, in which 1 signifies wheat some what resistant with pustules on the central and lower leaves, and 5 signifies wheat much affected with pustules on the upper leaves and ears.

The figures obtained from the study of the various varieties were as follows:—

Record	5
Barletta	5
San Martín	5
Klein 40	5
38 M. A.	5
Gral Urquiza	5
Lin Calel	3-4
Klein 32	3-4
Vencedor	3-4
Triunfo	3-4
Kanred	3-4
Favorito	2-3
13 T	2-3
Klein 31	1-2
Ardito	0-1

(1) Communication from the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, Ingeniero Agrónomo, Director of the Defensa Agrícola y Sanidad Vegetal, Ministry of Agriculture, Buenos Aires.

Comparing this table with that of previous years, it was seen that there was a tendency in the different varieties to increase their susceptibility to attacks by the parasite: the wheat 38 M. A. which was shown as 4, this year is shown as 5, the most serious attacks having been ascertained on specimens from the province of Córdoba. The variety Ardito, discarded by the Ministry of Agriculture for its low baking value, was the only one resistant to the attack, all the other varieties had been attacked to a greater or lesser degree.

Moreover, as a result of these studies, it was possible to ascertain that the greatest diffusion of yellow rust was always localised in the central cereal growing region (north-east and north of the province of Buenos Aires, centre and south of Santa Fé and centre and south of Córdoba).

Eritrea: Locusts (1).

During the month of February, 1935, no locusts have been reported in any part of the Colony.

United States of America: Bacterial Wilt of Maize (2).

Bacterial wilt of corn, *Zea mays*, familiarly known as Stewart's disease, *Aplanobacter stewarti*, which for several seasons has been increasingly prevalent both in incidence and in range northward, appears to have reached its climax in 1932 and 1933, and to have suddenly dropped to something like normal occurrence and distribution in 1934. In search of an explanation of this fluctuation in the behavior of the disease, Dr. Neil E. Stevens has gathered together and analyzed the available fragmentary facts regarding previous outbreaks and disappearances of bacterial wilt. His studies suggest that, 'An interesting and perhaps significant correlation appears to exist between winter temperatures and the abundance of the disease during the following summer'. Designating the sum of the monthly mean temperatures for December, January, and February computed in degrees Fahrenheit as the temperature index of the corresponding winter, he points out that, so far as the facts are available, they support the hypothesis that Stewart's disease will usually be present in a given locality in the north eastern United States following a winter with an index for that locality below 90 and present in destructive amounts following a winter with an index above 100, with intermediate conditions following winters with indexes between 90 and 100.

Aplanobacter stewarti is known to survive the winter to a limited extent in infected seed but evidence is lacking that it survives in infested soil. Char-

(1) Communication from the official correspondent of the Institute, Dr. ROLANDO GUIDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

(2) Communication from Mr. H. A. EDSON, Principal Pathologist in Charge, Plant Disease Survey, Bureau of Plant Industry, United States Department of Agriculture, Washington, to the International Institute of Agriculture.

lotte Elliott and F. W. Poos have just reported results of studies showing that the flea beetle, *Chaetocnema pulicaria* Melsh., is capable of transmitting Stewart's disease from infected to healthy corn plants and that overwintered adults of the insect harbour *Aplanobacter stewarti* in an infective condition. The flea beetles commonly feed on young corn plants on emerging from hibernation.

More complete information regarding *Chaetocnema pulicaria* and the phenological factor which influence its distribution is of exceeding interest.

India: Damage done by Frost in Winter 1934 to Crops and Fruit Plants in Punjab Plains (1).

There was severe cold in January, 1934 from 5th to 24th. Altogether there was frost for 18 nights and was continuous for several days. On the 20th and 21st January there was very heavy frost. The temperature went down to 27° F.

Wheat and Barley. Leaves of plants had turned yellow. As ears are produced in January and are still in sheath, they become liable to injury by frost. On the emergence of heads in March, it was noticed that in several cases, ears had turned white and were barren.

Oilseed Crops.

Toria, etc., (Rapes):— They had escaped damage, as fruit had set in most cases. All the same there was damage upto the extent of 10 per cent.

Linseed:— No damage was done to this crop.

Castor:— This suffered most. Leaves had dried up and growth of shoots had stopped. Flowering bunches were destroyed, and no seed was formed. Damage was as much as 50 per cent.

Gram (Chick pea). In many parts of the province, gram had suffered greatly. The shoots has withered and all the early flowers were killed. Growth had stopped altogether. Damage may be put down at about 10-20 per cent. in various fields. The crop, however, recovered to some extent in February.

Fodder Crops.

Berseem (Egyptian clover):— Young Berseem was altogether destroyed. Early sown crop had not suffered so much.

Oats:— Oats had turned red and dried up in many cases, particularly on poor soils.

Grasses:— Elephant grass, Guinea and other pasture grasses had also suffered a good deal.

(1) Communication from the official correspondent of the Institute, Mr. RAI SAHIB JAI CHAND JUTHRA, M. Sc., D. I. C. (London), I. A. S., Professor of Botany, Punjab Agricultural College, Lyallpur, Punjab, India.

Sugarcane. In many fields which were dry, leaves had dried up and buds were killed. The extent of damage to buds varied a good deal in different places from 20 to 70 per cent. Canes were left deficient in juice and quality was spoiled.

Fruits.

Citrus plants:— Lemon and grape fruit plants had suffered most.

Guavas:— Plants as much as 5-6 years old had their leaves and young shoots completely dried up.

Mangoes:— Although protected by covers against frost, young shoots which were in blossom and bearing fruits were destroyed. The mango crop was very poor all over the Punjab.

Bananas:— This plant is usually very susceptible to cold and during the year it had entirely dried up. Plants, however, sprouted again in spring.

Cold air wave precipitating into frost had caused damage to the plants above the ground level as well as near the ground. Sugarcane and fruit plants which were 4 feet high or even more were also injured. Low crops like Berseem had suffered greatly. Likewise, wheat and barley which were 1 to 1½ feet high in January were damaged.

Southern Rhodesia: Locust Invasion, 1932-1934 (1).

Monthly Report No. 25. December, 1934.

During December egg-laying by the Red Locust (*Nomadacris septemfasciata*, Serv.) has been reported in most districts of the Colony, and by the end of month hoppers had been reported from fourteen districts.

All specimens of eggs and hoppers forwarded to Salisbury have been of the Red species. If the invasions by the Tropical Migratory Locust (*Locusta migratoria migratorioides*, Rch. & Frm.) were as great as indicated by reports and specimens submitted, it would seem that this species has not been very successful in respect to breeding this season, as the hoppers should have hatched out well in advance of those of the Red Locust and attracted earlier attention.

Enemies and Disease.

The invading locusts have suffered greatly from the ravages of parasites and particularly the fungus disease (*Empusa grylli*) which has apparently been favoured by the wet weather. There can be no doubt that the position has been greatly alleviated by these agencies and it is not impossible that what threatened to be

(1) Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

an overwhelming outbreak of hoppers may prove to be comparatively light. The position will, however, become clearer in the course of the next few weeks.

The White-bellied Stork (*Abdimia abdimii*) has been much in evidence attacking the locusts, at least in Mashonaland, whilst flocks of the White Stork (*Ciconia alba*) have been reported in one or two localities.

The usual enemies and parasites of eggs have been recorded, including *Stomatorrhina lunata*, Cantharid beetles, etc.

Damage.

A considerable amount of young maize has been damaged in the maize growing districts, but has mostly either been re-planted or is reported to be recovering. Widespread damage to grazing is reported in Matabeleland. This damage has, of course, been inflicted by winged swarms.

Outlook.

The outlook is still somewhat obscure due to uncertainty as to the amount of eggs deposited before the majority of the swarms succumbed to parasites and disease. An element of uncertainty is also produced by the presence of scattered locusts in many parts, which may be more general than is known at present. Present indications are, however, to the effect that the prospect has greatly improved during the month.

VARIOUS QUESTIONS

Convention between American Countries for Locust Control.

Under the auspices of the Government of the Republic of Uruguay an International Conference of experts was held at Montevideo from 10 to 13 December, 1934, for the study of up-to-date methods of locust control.

The Governments represented at the Conference were those of: the Argentine Republic, Brazil, Salvador, Nicaragua, Guatemala, Mexico, Paraguay, and Uruguay.

At the conclusion of the discussions the plenipotentiaries of the above mentioned countries signed, on 13 December, the following Convention in a single copy deposited at the Ministry of Foreign Affairs of Uruguay.

Article 1. — The contracting Governments engage to establish within their respective countries, the technical services necessary for studying the locust problem.

Article 2. — These services will include:—

(a) the establishment of an institute or section intended exclusively for carrying out investigations on the locusts;

(b) the organisation of a system of information to report on the movement of swarms;

(c) the obligation to control the invasions of locusts in spring and summer by means of the most efficacious measures.

Article 3. — A continuous study of the locusts is considered indispensable by means of scientific investigations which will be carried out for an uninterrupted period during a complete life-cycle of the insect, and for which results obtained up to the present will be taken as a basis.

Article 4. — The scheme for investigation, especially in the north of the Argentine Republic and neighbouring countries, referred to in Art. 3 will be proposed by the Argentine authorities and submitted for consideration to the Governments signatories to this Convention.

The studies which will be undertaken will be principally directed towards determining the areas in which locusts are found during the autumn and winter months and to applying the most feasible and efficacious means of control in such seasons.

Article 5. — In order to unify and direct the Pan-American studies of locusts a Permanent, Pan-American, Technical Commission will be established for locust investigations with head-quarter at Buenos Aires and on which the contracting countries will be represented.

Article 6. — The Commission referred to in Art. 5, in order to carry out its' function with the greatest efficiency, will be placed in direct communication with the institutions or technical officers of the contracting countries.

Article 7. — Each year an international meeting of the countries interested will take place in a city to be decided upon by the Permanent Commission, at which the studies undertaken and the results obtained will be made known and the plan of campaign to be put into practice the following year will be decided upon.

Article 8. — An official publication will make known the investigations undertaken in each of the contracting countries and will contain a brief summary of the locust control in the other countries.

Article 9. — The funds required for the functioning of the Permanent Commission, for studies and publications, will be provided by contributions from the contracting countries in the form and proportion considered most suitable to their interests. This will be proposed at the first annual international meeting referred to in Art. 7.

Article 10. — Until the Permanent Commission is established the Argentine Government will engage to facilitate the execution of the work established in the present Convention, through the present Central Commission for locust investigations at Buenos Aires which will collect all information concerning the locust problem and interchange the said information with the technical offices of the adhering countries.

Article 11. — Other countries in America which have not signed the present Convention will be allowed to adhere to it on request.

Their adherence will be notified through diplomatic channels to the Government of Argentine Republic which will notify the other contracting countries.

Article 12. — The present Convention will be ratified and the ratifications deposited at the Ministry of Foreign Affairs of the Argentine Republic in the shortest possible space of time.

It will come into force in as much as it is promulgated in conformity with the legislation of the contracting countries.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Decree of 10 October, 1934, the provisions of 26 February, 1932 concerning the use of ethylene oxide have been modified.

Places where disinfection has been carried out with the aid of ethylene oxide should be aired for at least 6 hours. Afterwards, all doors and windows should be shut and, in places provided with heating apparatus, the temperature brought up to at least 15°C. After one hour the operator should establish, by the official method, whether the last traces of poisonous gas have disappeared. Places disinfected cannot be used again until after this examination, carefully carried out, has shown that traces of poisonous gas remaining in these places, including cushions, beds, etc do not exceed 0.5 mg per litre. (*Amliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1935, Bd. VII, Nr. 2, S. 15-16).

*** By Decree of 23 November 1934, relative to the inspection of consignments of fresh fruits, living plants and parts of living plants with regard to the presence of San José scale [*Aspidiotus perniciosus*], the list of customs houses charged with this inspection has been recently revised. This list gives the customs houses authorised to accept consignments of fresh fruits and fresh fruit residues coming from America, Australia including Tasmania and New Zealand, China, Hawaii, Japan, Yugoslavia, Mesopotamia, Austria, Portugal, Rumania, Union of South Africa, Hungary, and India. These customs houses are also authorised to accept consignments of fresh fruits, fresh fruit residues, living plants and parts of living plants coming from Bulgaria, Greece, Poland, Spain, and Czechoslovakia. (*Ibid.*, 1. Januar 1935, Nr. 1, S. 1-3).

** By Ordinance of 17 December, 1934 concerning the inspection of potato plants intended for export, it is established that all consignments of potato plants officially recognised should, before exportation, be inspected, from a qualitative and phytosanitary view point, by an authorised expert. The provincial centres of plant protection are entrusted with carrying this inspection. The Corporation of Agriculture ('Reichsnährstand') has established the technical rules to be followed. (*Ibid.*, 1. Februar 1935, Nr. 2, S. 16-17).

** By Decree of 22 December, 1934, the list is modified of customs houses authorised to accept consignments of fresh fruits, living plants and parts of living plants subject to phytosanitary inspection [see this *Bulletin*, 1934, No. 10, p. 221] (*Ibid.*, S. 17).

Germany (Hamburg). — By the Law of 7 December, 1934, relative to the control of the beetle *Hylotrupes bajulus*, insurance against damage caused by this insect is instituted. The Fire Insurance Society of Hamburg ('Hamburger Feuerkasse') is obliged to pay an indemnity to all its clients insured against fire for all damage directly caused by this beetle.

The Society, on the other hand, is authorised to insist that the proprietor should apply the measures of control judged necessary by the Society.

The expenditure incurred in this control will be born by the Society. In cases where persons interested do not carry out the necessary measures the Society can have the work executed by the competent authority. The Society will collect the funds intended to cover the costs of indemnity and expenditure on the control of the insect. For this purpose, it is authorised to demand from persons insured a special contribution not exceeding 0,15 % of the value estimated. Insured persons are obliged to ascertain if their houses are invaded or not by the beetle and, their presence being discovered, these persons are obliged to make a declaration within 14 days.

The indemnity paid by the Society will be fixed by an estimate made by experts. The indemnity will not be paid until after the damage has been repaired and the wood attacked burnt.

The Law came into force on 1. January, 1935 and will remain provisionally in force until 31 December, 1936. (*Ämtliche Pflanzenschutzbestimmungen*, Berlin, 1. Januar 1935, Bd. VII, Nr. 1, S. 5-8).

Germany (Prussia). — By Decree of 13 December, 1934, the provisions contained in the Decree of 4 March, 1933, concerning the protection of fields and gardens against pigeons [see this *Bulletin*, 1933, No. 7, p. 161] have been modified.

Owners of pigeons should, during the period of spring and autumn sowing, prevent their pigeons entering the fields and gardens recently sown. The local police authority will fix this period each year in accordance with local conditions. It should not exceed one month either in the spring or autumn except in exceptional cases. (*Ämtliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1935, Bd. VII, Nr. 2, S. 18).

Argentine Republic. — By 'Acuerdo de Ministros' No. 50.053. of 15 October, 1934, approval is given to the purchase of eggs of the South American locust [*Schistocerca paranensis*] by the 'Banco de la Nación Argentina', through its' branches in the interior of the country, during the year 1933, as required by the 'Comisión Nacional de Defensa contra la Langosta', dependent from the Ministry of Agriculture. (*Boletín Oficial de la República Argentina*, Buenos Aires, 30 de enero de 1935, año XLIII, núm. 12.189, pág. 1154).

Brazil. — The Ministerial Resolution of 19 November, 1934, establishes *inter alia*:—

(1) Prohibition, in the whole of the country, for importation from any country of plants and parts of plants as follows:—

- (a) Cotton seeds and cotton bolls;
- (b) Suckers and pseudo-bulbs of bananas;
- (c) Coffee berries, shoots of coffee trees, seeds and shoots of other

Rubiaceae;

- (d) Shoots, fruits and seeds of cacao;
- (e) Shoots, buds and seeds of sugar-cane;
- (f) Seeds, bud grafts and shoots of plants belonging to the genera *Citrus*,

Poncirus, *Fortunella* and of all other genera of the sub-family Aurantioideae of the family Rutaceae, also of the genera *Evodia*, *Melicope*, *Casimiroa*, and *Toddalia* also belonging the above-mentioned family;

(g) Seeds and shoots of *Eucalyptus* grown in New Zealand, Australia, South Africa and Argentine Republic.

(2) Prohibition to import alfalfa seeds and all other forage plants if in the health and origin certificate it is not expressly stated that they are exempt from seeds of *Cuscuta*.

(3) Prohibition to import potato tubers which are not accompanied by a health and origin certificate in which it is obligatory to declare that the potatoes come from a region exempt from the following parasites: *Synchytrium endobioticum*, *Spongospora subterranea*, *Phthorimaea operculella*, and *Leptinotarsa decemlineata*.

The importation of potatoes from Portugal and Spain will only be permitted at the port of Rio de Janeiro, and only if this product is intended exclusively for food purposes.

(4) Prohibition to import maize seed if, in the health and origin certificate, it is not expressly stated that this cereal comes from a region exempt from *Pyrausta nubilalis*.

(5) Prohibition to import branches of cotton and residues of cotton, also of straw and panicles of sorghum, if not accompanied by a certificate stating that these products have been thoroughly cleansed.

(6) The following products imported are exempted from health and origin certificates: garlic, onions, cumin, black pepper, anise, cloves, almonds, walnuts, hazel-nuts, canary-seed, and panic grass.

In the above concession will also be included, but only if imported for food purposes or industry (forage and fermentation industries), wheat, oat, rye, barley, and flax seeds.

(7) Imports of plants and parts of plants coming from abroad will only be permitted by the ports of Manãos, Belém, Recife, São Salvador, Rio de Janeiro, São Francisco, Rio Grande, Porto Alegre, and Corumbá.

(8) The following prohibitions are declared:—

(a) In the State of Rio Grande do Sul, it is forbidden to send to any part of the country fresh fruits, bud grafts, runners, and shoots of fruit-bear-

ing plants, except when accompanied by a transport permit authorised by the Service of 'Defensa Sanitaria Vegetal';

(b) In the States of Parahyba and Pernambuco, it is forbidden to send to any part of the country shoots or living parts of coffee, also other species of the family of Rubiaceae, except when accompanied by a transport permit declaring them to be in a healthy condition;

(c) In the State of São Paulo, it is forbidden to send to any part of the national territory suckers and bulbs of bananas, except when these products are accompanied by a certificate of disinfection delivered by the competent Service of the said State or by one of the disinfection Stations controlled by the Service of 'Defensa Sanitaria Vegetal';

(d) In the Federal District and neighbouring municipalities, it is forbidden to transport suckers of the plants belonging to the genus *Citrus* if accompanied by any earth. Those interested should remove the leaves of the said suckers and transport them packed in moss or saw-dust.

(9) Approval is given to the model health and origin certificate.

(10) It is prohibited, for cultivators of crops for sale, to conserve other species of plants which, not being subject to scientific control, may serve as hosts for parasites of those crops. (*Diario Oficial*, [Rio de Janeiro], 30 de novembro de 1934, anno LXXIII, núm. 276, págs. 24061-24062).

Chile. — The Law No. 5.504 of 29 September, 1934, authorises the expenditure up to the sum of 300.000 'pesos' annually on the control of the pests which attack national fruit growing; establishes a tax of 2 'centavos' per kilo on dried and preserved fruits and 1 'centavo' per kilo on fresh fruit exported; also authorises the expenditure, for the year 1934, up to the sum of 500.000 'pesos' to control the pests which attack fruit growing and to construct insectaria. (*Diario Oficial de la República de Chile*, Santiago, 2 de octubre de 1934, año LVII, núm. 16,984, págs. 3121 y 3122).

United States of America. — By revision of Sugarcane Quarantine No. 15 (Foreign), approved on 20 September, 1934 and effective on 1 October, 1934, the importation into the United States of canes of sugarcane, or cuttings or parts thereof, sugarcane leaves, and bagasse, from all foreign countries and localities, is prohibited. This prohibition shall not apply to importations by the United States Department of Agriculture for scientific or experimental purposes, nor to importations of specific materials which the Department may authorize under permit on condition that they have been or are to be so treated, processed, or manufactured that, in the judgement of the Department, their entry will involve no pest risk. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Revision of Sugarcane Quarantine No. 15 (Foreign)*, Washington, 1934, 1 p.).

* * Revised rules and regulations supplementary to Notice of Quarantine No. 45, on account of gipsy moth (*Porthetria dispar*) and brown-tail moth (*Nygmia phaeorrhoea* formerly referred to as *Euproctis chrysorrhoea*), have been approved

on 27 September, 1934 and shall be effective on 2 October, 1934. The revision reduces the size of the regulated area in Vermont and designates as generally infested certain territory of Connecticut, Maine, New Hampshire, and Vermont which has heretofore been classed as slightly infested. It also modifies the boundaries of the area designated as brown-tail moth infested in the States of Maine, Massachusetts, and New Hampshire, and adds parts of four counties in Vermont.

Additional changes of interest to shippers include the exemption of such woody plants as have been grown in the greenhouse throughout the year and are so labeled; the authorization of the shipment of 'Christmas trees' from the generally infested area when grown as nursery stock in a cultivated nursery and certified under the nursery stock provisions; the adding of empty cable reels to the list of restricted articles; and slight modifications in the procedure for the certification of car-lot shipments. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Gypsy Moth and Brown-Tail Moth Quarantine* (Quarantine No. 45). *Revision of Regulations*, Washington, 1934, 8 pp.).

* * By revision of Notice of Quarantine No. 30, approved on 4 October, 1934 and effective on and after 10 October, 1934, the commercial movement of any variety of sweet potato (*Ipomoea batatas* Poir.) is prohibited from Hawaii and Puerto Rico to prevent the spreading of sweet potato scarabee (*Euscepes batatae* Waterh.) and of sweet potato-stem borer (*Omphisa anastomosalis* Guen.). (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Sweetpotato Quarantine (Domestic)*. *Notice of Quarantine No. 30 (Revised)*. [Washington], 1934, 1 p.).

* * The Amendment No. 2 to revised rules and regulations supplemental to Notice of Quarantine No. 52, on account of the pink bollworm of cotton [*Platyedra gossypiella*], approved on 24 October, 1934 and effective on 31 October, 1934, modifies the area regulated by bringing under restriction the counties of Dixie, Hamilton, Lafayette, Levy, and Taylor in the State of Florida, and all of Ector and Andrews Counties and part of Midland County in Texas. The Florida counties are brought under regulation at this time because of the recent finding of pink bollworm infestation in Hamilton and Levy Counties, and because Dixie, Lafayette, and Taylor Counties are contaminated by reason of ginning their seed in the counties when infestation has been found. These latter counties (Dixie, Lafayette, and Taylor) have no ginning facilities) The counties in Texas are added as a result of pink bollworm infestation being found in gin trash in Midland, Tex., involving part of Midland County, as well as Ector and Andrews Counties. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Modification of Pink Bollworm Quarantine Regulations*, [Washington], 1934, 3 pp.).

* * By revision of Notice of Quarantine No. 70 on account of the Dutch elm disease (*Graphium ulmi*), approved on 20 December, 1934 and effective on and after 1 January, 1935, the importation into the United States from the

continent of Europe of the following articles is prohibited: (a) Seeds, leaves, plants, cuttings, and scions of elm and related plants; (b) logs of elm and related plants; (c) lumber, timber, or veneer of such plants if bark is present on them; (d) crates, boxes, barrels, packing cases and other containers, and other articles manufactured in whole or in part of the wood of elm and related plants, if the elm wood or wood of related plants is not free from bark.

Exceptions to the above prohibitions may be authorized for entry under permit under such conditions and regulations as the Secretary of Agriculture may prescribe, or when the particular article or material has been or is to be so treated, prepared, or processed that, in the judgement of the Secretary of Agriculture, its unrestricted entry involves no risk of pest introduction.

The expression 'elm and related plants' means plants of all genera and species of the family Ulmaceae, including the genera *Ulmus*, *Celtis*, *Zelkova*, *Ampelocera*, *Aphananthe*, *Barbeya*, *Chaetachne*, *Chaetoptelea*, *Girroniera*, *Holoptelea*, *Lozanella*, *Parasponia*, *Phyllostylon*, *Planera*, *Pteroceltis*, *Trema*, and all species thereof. (United States Department of Agriculture. Bureau of Entomology and Plant Quarantine. *Dutch Elm Disease Quarantine. Notice of Quarantine No 70.* [Washington, 1934], 2 pp. [Mimeographed]).

Republic of Guatemala. — By letter No. 123 of 1 December, 1934, the Ambassador Extraordinary and Plenipotentiary of Mexico at Guatemala City proposed to the Government of Guatemala to establish a Convention, by the simple exchange of official letters, in order to carry out a simultaneous control of the South American locust (*Schistocerca paranensis* Burm.).

By letter of 15 December, 1934, the Secretary of State for Foreign Affairs of the Republic of Guatemala, in accord with the Secretary for Agriculture, has informed the Ambassador of Mexico that the Government of Guatemala has accepted the Convention proposed by the Government of Mexico, on the following terms:—

Article 1. — The Secretary of State for Agriculture of the Republic of Guatemala will establish, in the infested frontier zone and in the most convenient place, a 'Jefatura de la Campaña contra la Langosta' to supervise and intensify the work of locust extermination in conformity with the governmental 'acuerdos', dated 9 May, 1925 and 27 February, 1926. This 'Jefatura' will collaborate against the locusts with the 'Jefatura' established by the Mexican Government in Tapachula, Chis., according to a programme approved by the respective Secretaries of State who will have the power to introduce the changes and modifications necessary in the programme.

Article 2. — Both Governments engage to give all facilities for the free passage of staff and material for the control from one country to the other according as the necessity may arise.

Article 3. — Both Governments will establish, within the agricultural Services and within economic possibilities, in accordance with the resolution taken at the Seventh Pan-American Conference at the session of 23 December, 1933, a

Centre or Office of locust investigations of a permanent nature and which will collect all the data on locust movements within the country and without, and will study all the biological, physical and chemical methods for locust control and will engage to periodically inform one or other of the contracting parties on the work carried out and the results obtained.

Article 4. — Both Governments engage to establish similar Conventions with the other adjacent countries if there exist movements of swarms of locusts of an international character in the respective frontier zones. (*Diario de Centro América*, Guatemala, 22 de diciembre de 1934, tomo XII, núm. 42, pág. 217).

Morocco (French Zone). — A Decree of the Director of Waters and Forests, dated 22 December, 1934, authorises the destruction of rabbits in certain zones of the circle of Loukkos, Ouezzane, up to 31 August, 1935. (Empire Chérifien. Protectorat de la République Française au Maroc. *Bulletin Officiel*, Rabat, 4 janvier 1934, XXIV^e année, n^o 1158, p. 11-12).

Mozambique. — The Diploma Legislativo ' No. 384-A of 4 August, 1933, establishes and defines the collaboration in the control of the locust invasion that is incumbent on persons other than natives (farmers, stock-breeders, etc.), and on all those persons, who individually or collectively, are occupiers of lands, under whatever title, and constitutes district commissions to direct this work which will be carried out according to instructions which will be published at in due course. (República Portuguesa. Colónia de Moçambique. *Boletim Agrícola e Pecuário*, Lourenço Marques, 1934, Janeiro a Dezembro de 1933 (N.^{os} 1 a 4), págs. 239 a 241).

Peru. — The Resolution of 29 October, 1934, in conformity with the Resolution of 1 October of the same month [see this *Bulletin*, 1935, No. 3, p. 65], declares the valley of Cañete to be a 'zone of protection' and the region of the Imperial to be a 'zone of control' with regard to the 'piojo blanco' of cotton [*Hemichionaspis minor*]. At the same time other measures are laid down relative to the control of the said pest. (*La Vida Agrícola*, Lima, (Perú), diciembre 1^o de 1934, vol. XI, no. 133, págs. 969 y 970).

Tripolitania. — By Decree of the Governor, dated 31 December, 1934, it is permitted to hunt, kill and capture sparrows in Lybia at all times and at all stages of development. Persons provided with a permit for systematic hunting, delivered by the authorities for public safety, may make use of fire arms for this purpose. It is also permitted to capture and kill sparrows utilising all means for capturing birds such as nets, birdlime, etc. (*Bollettino del Regio Ufficio per i Servizi Agrari della Tripolitania*, Tripoli, gennaio 1935, anno IV, n. 1, p. 26).

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 [A disease caused by an organism closely resembling *Pseudomonas intybi*].

NOTES

National Natural History Museum at Paris. — This Museum will celebrate its third centenary in 1935. On this occasion festivities will take place in Paris from 24 to 29 June next.

VIIth International Congress of Entomology. — This Congress will take place at Madrid from 6 to 12 September, 1935.

XIIth International Congress of Zoology. — This Congress will take place at Lisbon from 15 to 21 September, 1935.